Listing of Claims:

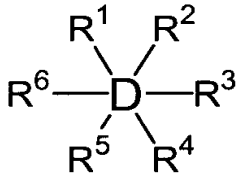
1. (Withdrawn) A higher diamondoid derivative.

2. (Withdrawn) The higher diamondoid derivative of Claim 1 containing one or two polymerizable moieties.

3. (Withdrawn) The higher diamondoid derivative of Claim 2 containing one polymerizable moieties.

4. (Withdrawn) The higher diamondoid derivative of Claim 2 containing two polymerizable moieties.

5. (Withdrawn) The higher diamondoid derivative of Claim 1 having the formula:



wherein
D is a higher diamondoid nucleus, and
R^1, R^2, R^3, R^4, R^5 and R^6 are independently selected from the group consisting of hydrogen and a polymerizable moiety; provided at least one of the R's is a polymerizable moiety.

6. (Withdrawn) The higher diamondoid derivative of Claim 2 wherein the polymerizable moieties are selected from alkenyl, alkynyl, OH, C_2H_3O, SH, NH_2, CO_2H, C_6H_5, $C_6H_4NH_2$, $C_6H_4CO_2H$ or C_6H_4OH

7. (Withdrawn) The higher diamondoid derivative of Claim 2, wherein the one or more polymerizable moieties are attached to tertiary carbons of the higher diamondoid.

8. (Withdrawn) The higher diamondoid derivative of Claim 5 wherein the higher diamondoid is tetramantane.

9. (Withdrawn) The higher diamondoid derivative of Claim 5 wherein the higher diamondoid is pentamantane.

10. (Withdrawn) The higher diamondoid derivative of Claim 5 wherein the higher diamondoid is hexamantane.

11. (Withdrawn) The higher diamondoid derivative of Claim 5 wherein the higher diamondoid is heptamantane.

12. (Withdrawn) The higher diamondoid derivative of Claim 5 wherein the higher diamondoid is octamantane.

13. (Withdrawn) The higher diamondoid derivative of Claim 5 wherein the higher diamondoid is nonamantane.

14. (Withdrawn) The higher diamondoid derivative of Claim 5 wherein the higher diamondoid is decamantane.

15. (Withdrawn) The higher diamondoid derivative of Claim 5 wherein the higher diamondoid is undecamantane.

16. (Withdrawn) The higher diamondoid derivative of Claim 5 wherein the polymerizable moiety has the structure:

$$-(X)_m-(Y)_n-Z$$

wherein

X is O, NR^7, OC(O), $NR^8C(O)$, C(O)O or $C(O)NR^9$, wherein R^7, R^8 and R^9 are independently hydrogen or alkyl;

Y is alkylene, arylene, alkarylene, heteroarylene or alkheteroarylene;

Z is alkenyl, alkynyl, OH, C_2H_3O, SH, NH_2, CO_2H, C_6H_5, $C_6H_4NH_2$, $C_6H_4CO_2H$ or C_6H_4OH

m is 0 or 1; and,

n is 0 or 1.

17. (Withdrawn) The higher diamondoid derivative of Claim 16, wherein there is one or two polymerizable moieties on the derivative.

18. (Withdrawn) The higher diamondoid derivative of Claim 17, wherein there is one polymerizable moiety on the derivative.

19. (Withdrawn) The higher diamondoid derivative of Claim 17, wherein there are two polymerizable moieties on the derivative.

20. (Withdrawn) The higher diamondoid derivative of Claim 16, wherein Z is selected from the group consisting of ethenyl, ethynyl, propenyl, propynyl, isobutenyl and butynyl.

21. (Withdrawn) The higher diamondoid derivative of Claim 16, wherein Z is selected from a group consisting of OH and SH.

22. (Withdrawn) The higher diamondoid derivative of Claim 16, wherein Z is selected from a group consisting of NH_2, C_2H_3O and CO_2H.

23. (Withdrawn) The higher diamondoid derivative of Claim 16, wherein Z is selected from a group consisting of C_6H_5, $C_6H_4NH_2$, $C_6H_4CO_2H$ and C_6H_4OH.

24. (Withdrawn) The higher diamondoid derivative of Claim 16, wherein X is O, OC(O), NR^7, $NR^8C(O)$, C(O)O, or $C(O)NR^9$.

25. (Withdrawn) The higher diamondoid derivative of Claim 16, wherein *m* is 0 and Y is alkylene or arylene.

26. (Withdrawn) The higher diamondoid derivative of Claim 16, wherein *m* is 0 and Y is alkylene.

27. (Withdrawn) The higher diamondoid derivative of Claim 16, wherein *m* is 0 and *n* is 0.

28. (Withdrawn) The higher diamondoid derivative of Claim 24, wherein Y is -CH_2- or -$(CH_2)_2$-.

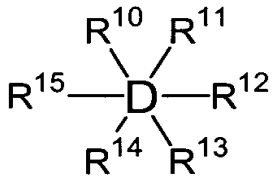
29. (Withdrawn) A higher diamondoid intermediate.

30. (Withdrawn) The higher diamondoid intermediate of Claim 29 containing one or two intermediate moieties.

31. (Withdrawn) The higher diamondoid intermediate of Claim 30 containing one intermediate moieties.

32. (Withdrawn) The higher diamondoid intermediate of Claim 30 containing two intermediate moieties.

33. (Withdrawn) The higher diamondoid intermediate of Claim 29 having the formula:



wherein
D is a higher diamondoid nucleus; and
R^{10}, R^{11}, R^{12}, R^{13}, R^{14} and R^{15} are independently selected from the group consisting of hydrogen and an intermediate moiety; provided at least one of the R's is an intermediate moiety.

34. (Withdrawn) The higher diamondoid intermediate of Claim 33 wherein the intermediate is present in an amount of at least 100 ppm of the composition in which it is present.

35. (Withdrawn) The higher diamondoid intermediate of Claim 34 wherein the intermediate moieties are selected from H, F, Cl, Br, I, OH, SH, NH_2, $NHCOCH_3$, NHCHO, CO_2H, CO_2R', COCl, CHO, CH_2OH, =O, NO_2, -$CH=CH_2$, -C≡CH and C_6H_5; wherein R^1 is alkyl.

36. (Withdrawn) The higher diamondoid intermediate of Claim 34, wherein the one or more intermediate moieties are attached to tertiary carbons of the higher diamondoid.

37. (Withdrawn) The higher diamondoid intermediate of Claim 34 wherein the higher diamondoid is tetramantane.

38. (Withdrawn) The higher diamondoid intermediate of Claim 34 wherein the higher diamondoid is pentamantane.

39. (Withdrawn) The higher diamondoid intermediate of Claim 34 wherein the higher diamondoid is hexamantane.

40. (Withdrawn) The higher diamondoid intermediate of Claim 34 wherein the higher diamondoid is heptamantane.

41. (Withdrawn) The higher diamondoid intermediate of Claim 34 wherein the higher diamondoid is octamantane.

42. (Withdrawn) The higher diamondoid intermediate of Claim 34 wherein the higher diamondoid is nonamantane.

43. (Withdrawn) The higher diamondoid intermediate of Claim 34 wherein the higher diamondoid is decamantane.

44. (Withdrawn) The higher diamondoid intermediate of Claim 34 wherein the higher diamondoid is undecamantane.

45. (Withdrawn) The higher diamondoid intermediate of Claim 34 wherein R^{10} is an intermediate moiety with at most one other R being an intermediate moiety.

46. (Withdrawn) The higher diamondoid intermediate of Claim 45, wherein R^{10} is OH.

47. (Withdrawn) The higher diamondoid intermediate of Claim 45, wherein R^{10} is Br.

48. (Withdrawn) The higher diamondoid intermediate of Claim 45, wherein R^{10} is NH_2.

49. (Withdrawn) The higher diamondoid intermediate of Claim 45, wherein R^{10} is CO_2H.

50. (Withdrawn) The higher diamondoid intermediate of Claim 45, wherein R^{10} is =O.

51. (Withdrawn) The higher diamondoid intermediate of Claim 45, wherein R^{10} is F.

52. (Withdrawn) The higher diamondoid intermediate of Claim 45, wherein R^{10} is Cl.

53. (Withdrawn) The higher diamondoid intermediate of Claim 45, wherein R^{10} is I.

54. (Withdrawn) The higher diamondoid intermediate of Claim 45, wherein R^{10} is NO_2.

55. (Withdrawn) The higher diamondoid intermediate of Claim 45, wherein R^{10} is $CO_2CH_2CH_3$.

56. (Withdrawn) The higher diamondoid intermediate of Claim 45, wherein R^{10} is COCl.

57. (Withdrawn) The higher diamondoid intermediate of Claim 45, wherein R^{10} is CHO.

58. (Withdrawn) The higher diamondoid intermediate of Claim 45, wherein R^{10} is CH_2OH.

59. (Withdrawn) The higher diamondoid intermediate of Claim 45, wherein R^{10} is $CH=CH_2$.

60. (Withdrawn) The higher diamondoid intermediate of Claim 45, wherein R^{10} is C≡CH.

61. (Withdrawn) The higher diamondoid intermediate of Claim 45, wherein R^{10} is C_6H_5.

62. (Withdrawn) The higher diamondoid intermediate of Claim 45, wherein R^{10} is SH.

63. (Withdrawn) The higher diamondoid intermediate of Claim 45, wherein R^{10} is $NHCOCH_3$.

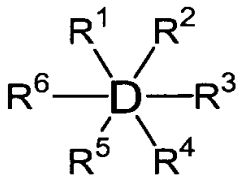
64. (Withdrawn) The higher diamondoid intermediate of Claim 45, wherein R^{10} is NHCHO.

65. (Currently Amended) A method of obtaining a polymer comprising:
   a. subjecting a higher diamondoid derivative ~~of Claim 1~~ to polymerization conditions thereby forming a polymerization reaction product containing a higher diamondoid containing polymer; and
   b. isolating the polymer from the polymerization reaction product.

66. (Currently Amended) A method of obtaining a polymer comprising:
   a. subjecting a higher diamondoid derivative ~~of Claim 2~~ <u>containing one or two polymerizable moieties</u> to polymerization conditions thereby forming a polymerization reaction product containing a higher diamondoid containing polymer; and
   b. isolating the polymer from the polymerization reaction product.

67. (Currently Amended) A method of obtaining a polymer comprising:
   a. subjecting a higher diamondoid derivative ~~of Claim 5~~ to polymerization conditions thereby forming a polymerization reaction

product containing a higher diamondoid containing polymer; the higher diamondoid derivative having the formula:



wherein

D is a higher diamondoid nucleus, and

R^1, R^2, R^3, R^4, R^5 and R^6 are independently selected from the group consisting of hydrogen and a polymerizable moiety; provided at least one of the R's is a polymerizable moiety; and

b. isolating the polymer from the polymerization reaction product.

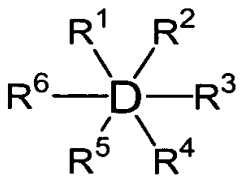
68. (Currently Amended) A method of obtaining a polymer comprising:

a. subjecting a higher diamondoid derivative ~~of Claim 6~~ to polymerization conditions thereby forming a polymerization reaction product containing a higher diamondoid containing polymer; the higher diamondoid derivative containing one or two polymerizable moieties wherein the polymerizable moieties are selected from alkenyl, alkynyl, OH, C_2H_3O, SH, NH_2, CO_2H, C_6H_5, $C_6H_4NH_2$, $C_6H_4CO_2H$ or C_6H_4OH; and

b. isolating the polymer from the polymerization reaction product.

69. (Currently Amended) A method of obtaining a polymer comprising:

a. subjecting a higher diamondoid derivative ~~of Claim 16~~ to polymerization conditions thereby forming a polymerization reaction product containing a higher diamondoid containing polymer; the higher diamondoid derivative having the formula:



wherein

D is a higher diamondoid nucleus, and

R^1, R^2, R^3, R^4, R^5 and R^6 are independently selected from the group consisting of hydrogen and a polymerizable moiety; provided at least one of the R's is a polymerizable moiety;

wherein the polymerizable moiety has the structure:

$$-(X)_m-(Y)_n-Z$$

wherein

X is O, NR^7, OC(O), $NR^8C(O)$, C(O)O or $C(O)NR^9$, wherein R^7, R^8 and R^9 are independently hydrogen or alkyl; and

b. isolating the polymer from the polymerization reaction product.

70. (Original) A higher diamondoid polymer comprising, as a recurring unit, a higher diamondoid derivative having a derivatizing moiety attached to a higher diamondoid, said derivatizing moiety covalently bonding the higher diamondoid into the polymer.

71. (Original) The higher diamondoid polymer of Claim 70 comprising *n* recurring units having the formula:

$$\begin{array}{c} -(R)- \\ | \\ D \end{array}$$

wherein

R is the derivatizing group;

D is the higher diamondoid and *n* is an integer larger than 1.

72. (Currently Amended) The higher diamondoid polymer of Claim 70 comprising *n* recurring units having the formula:

and *m* recurring units having the formula:

wherein
R is the derivatizing group;
D is the higher diamondoid;
CP is a nondiamondoid copolymer unit, and *n* and *m* are each integers greater than 1 with the ratio of *n* to *m* having a value of from about 0.001 to about 1000.

73. (Original) The higher diamondoid polymer of Claim 70 comprising *n* recurring units having the formula:

wherein
D is the higher diamondoid;
R is the derivatizing group and *n* is an integer greater than 1.

74. (Original) The higher diamondoid polymer of Claim 70 comprising *n* recurring units having the formula:

wherein

D is a higher diamondoid and R^1 and R^2 are two derivatizing groups.

75. (Currently Amended) The higher diamondoid polymer of Claim 70 comprising *n* recurring units having the formula:

-(D-R)-

and *m* recurring units having the formula:

-(CP)-

wherein

D is the higher diamondoid;

R is the derivatizing group;

CP is a nondiamondoid copolymer unit, and *n* and *m* are each integers greater than 1 with the ratio of *n* to *m* having value of from about 0.001 to about 1000.

76. (Original) The higher diamondoid polymer of Claim 70 comprising *n* recurring units having the formula:

$-(R^1\text{-D-}R^2)_n-$

and *m* recurring units having the formula:

-(CP)-

wherein

R^1 and R^2 are derivatizing groups.

77. (Original) The higher diamondoid polymer of Claim 70 additionally comprising a preformed backbone to which the higher diamondoid derivatives are covalently bonded.

78. (Original) A polymer having at least two higher diamondoid components covalently bonded to each other.

79. (Original) The polymer of Claim 78 wherein said at least two higher diamondoid components are covalently bonded to each other through a linker.

80. (Original) The polymer of Claim 78 wherein said polymer is a homopolymer.

81. (Original) The polymer of Claim 78 wherein said polymer is a co-polymer.

82. (Original) A polymer of Claim 78 represented by formula

$$(D)_q\text{-}L$$

wherein
each D is independently a higher diamondoid group;
L is a linker; and
q is an integer from 2 to 100.

83. (Currently Amended) A polymer of Claim 78 represented by formula

$$(D)_s$$

wherein
each D is independently a higher diamondoid group; and
s is an integer from 2 to 1,000.

84. (Original) A polymer of Claim 78 represented by formula

$$D\text{-}(L\text{-}D\text{-}L)_r\text{-}D$$

wherein
each D is independently a higher diamondoid group;
each L is independently a linker; and
r is an integer from 1 to 1,000,000.

85. (Original) The polymer of Claim 84 wherein *r* is selected from 1 to 1000.